

Remarks

Reconsideration of the application is requested in view of the amendments to independent claims 32 and 48 above, and comments which follow.

The applicant's are gratified by the Examiner's comments in numbered section 4 on page 2 of the Office Action, but the Examiner has now rejected independent claims 32 and 48 under 35 U.S.C. § 103(a) as being unpatentable over Endo et al. in view of newly-cited Wolf et al. U.S. Patent No. 4,972,258. Reconsideration is requested.

The Examiner has correctly acknowledged that Endo (US2002/0097490) does not disclose a state machine controller having a state counter, a state memory and a duration downcounter which receives a clock signal, as is required by applicants' claims. While Wolf is pertinent prior art, the claims above are submitted to distinguish over Endo and Wolf.

Wolf discloses a scanning laser microscope with a frame storage control module 140 for controlling optical system 202. The frame storage control module includes a delay circuit 1007 that receives clock signals and that includes a downcounting circuit 1004. Although there are similarities between the control arrangement in the Wolf system and that used in the present invention, the similarities are superficial only and it is submitted that the Wolf arrangement cannot properly be equated with that of the present invention.

In Wolf, the frame storage control module 140 only controls aspects of the scanning system and does not control the excitation light source and image capture device.

In contrast, in the present information, it is critical that the state machine controller 18 controls not only the confocal scanning system but also the excitation light source (laser 16), the image capture device (cameral 14) and possibly also the microscope stage Z position, so that all components are precisely synchronized. This is necessary so that light from the specimen is only incident on the image capture device for a specific time period equal to that required by the scanning system to scan the area of interest at times where n is a whole number equal to or greater than 1 as is required by claims 32 and 48.

Wolf is concerned with synchronizing a galvanometer with the optical system and does not require the precise synchronization of the confocal scanning system,

excitation light source and image capture device in a way that is critical for the present invention.

To clarify this distinction the final clause of claim 32 has been amended to replace “and/or” with “and”. Similar amendment has been made to claim 48.

Furthermore, in Wolf the relationship between computer 86 and frame storage control module 140 is quite different from that between the host computer and controller of the present invention.

In Wolf, information only passes from the frame storage control module 140 to the computer 86 (Figure 2). There is no flow of information from computer 86 (which controls the position of the microscope stage) to the frame storage control module 140.

In contrast, in the present invention, there is a flow of information from computer 20 to controller 18 (see e.g. Figure 1). In particular, state data stored in the host computer 20 is supplied to the state machine controller (memory 62), as explained in the third paragraph page 27. This arrangement means that it is possible readily to change the imaging protocol, which makes the system of the invention very versatile and flexible. This was explained in applicants' response of August 14, 2009 (in the paragraph bridging pages 12 and 13). In contrast, in Wolf the control arrangement is hard wired in control electronics and cannot readily be altered.

To emphasize this further distinction over the prior art, claim 32 has been amended to refer to this feature. In particular, the final clause of claim 32 has been amended to read:

“programmed to function as a state machine, with the host computer arranged to supply state data to the state machine controller, the state machine controller having a state counter, a state..”

Similarly, the eighth line of claim 48 has been amended to read:

“..is programmed to function as a state machine, with the state machine controller receiving state data from a host computer, the state machine having [and that has] a state counter, a state..”

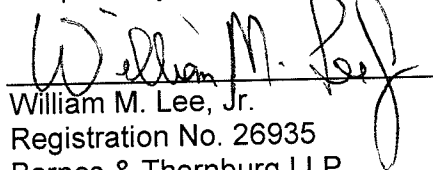
It should also be noted that Endo and Wolf have very different architectures and their teachings are not compatible. It would not be a simple matter to combine the systems of Endo and Wolf as the Examiner suggests. In any event, such combination would not result in the invention as now claimed, as explained above. In particular, there is no teaching of a state machine controller controlling the scanning system, the excitation light source and the image capture device in the manner specified in our claims. There is also no teaching of control means including a host computer supplying state data to a state machine controller as now claimed.

It is therefore submitted that independent claims 32 and 48 distinguish from the prior art and are allowable thereover. As the remaining claims depend from either claim 32 or 48, those claims are submitted to be allowable, as well. The Examiner's further and favorable reconsideration of the application is therefore urged.

As this response is being submitted during the fourth month following the Examiner's Office Action, an appropriate Petition for Extension of Time is also submitted herewith.

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Respectfully submitted,



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